

THAT WHICH IS CLAIMED:

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1. A method for producing a transformed plant, comprising the steps of:
introducing a nucleic acid into a cell of green regenerative tissue to
5 produce a transformed plant cell;
culturing the transformed plant cell under conditions comprising dim light
on an intermediate-incubation medium comprising an auxin and a cytokinin, thereby
promoting proliferation and formation of a transformed structure that is competent to
regenerate; and
10 culturing the transformed structure on a regeneration medium to produce
the transformed plant.

2. The method of claim 1 wherein the auxin is selected from the group
consisting of 2,4-dichlorophenoxyacetic acid, dicamba, naphthaleneacetic acid,
15 indoleacetic acid, picloram, 2,4,5-trichlorophenoxyacetic acid and mixtures thereof.

3. The method of claim 1 wherein the cytokinin is selected from the group
consisting of 6-benzylaminopurine, zeatin, zeatin riboside, kinetin, 2iP, and mixtures
thereof.
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4. The method of claim 1 wherein the intermediate-incubation medium
comprises the auxin at a concentration of about 0.1 mg/L to about 5 mg/L.

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5. The method of claim 1 wherein the intermediate-incubation medium
comprises the cytokinin at a concentration of about 0.01 mg/L to about 5 mg/L.
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6. The method of claim 1 wherein the intermediate-incubation medium
further comprises copper at a concentration of about 0.1 μ M to about 50 μ M.

7. The method of claim 1 wherein the intermediate-incubation medium further comprises a carbon source comprising maltose or sucrose.

8. The method of claim 1, wherein the intermediate-incubation medium: comprises the auxin at a concentration of about 0.1 mg/L to about 5 mg/L and the cytokinin at a concentration of about 0.1 mg/L to about 5 mg/L; and further comprises maltose, and copper at a concentration of about 0.1 μ M to about 50 μ M.

9. The method of claim 1 wherein the step of culturing the transformed plant cell on an intermediate-incubation medium comprises culturing the transformed plant cell under conditions comprising dim light.

10. The method of claim 1 further comprising selecting for the transformed plant cell by incubating the plant cell on a growth medium comprising a selective agent.

11. The method of claim 1 wherein the step of introducing the nucleic acid comprises bombardment of the green regenerative tissue with microprojectiles coated with the nucleic acid.

12. The method of claim 11 wherein bombardment is performed at below 1300 psi.

13. The method of claim 12 wherein bombardment is performed at about 900 to 1100 about psi.

14. The method of claim 1 wherein the plant is a monocotyledonous plant.

15. The method of claim 14 wherein the monocotyledonous plant is selected from the group consisting of barley, oat, wheat, maize, rice, sorghum, orchardgrass, tall fescue, red fescue, creeping bentgrass and Kentucky bluegrass.

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16. The method of claim 15 wherein the barley is selected from the group consisting of Golden Promise, Galena, Harrington, Morex, Moravian III, and Salome.

5 17. The method of claim 15 wherein the wheat is selected from the group consisting of Bobwhite, Anza, Yecora Rojo and Karl.

18. The method of claim 15 wherein the maize is H99 or B73.

10 19. The method of claim 15 wherein the rice is Taipei 309.

20. The method of claim 15 wherein the orchardgrass is Rapido.

21. The method of claim 15 wherein the tall fescue is Ky 31.

15 22. The method of claim 15 wherein the red fescue is 43F-93.

23. The method of claim 15 wherein the creeping bentgrass is Putter.

20 24. The method of claim 15 wherein the Kentucky bluegrass is Kenblue.

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25 ~~25. A method of preparing green regenerative tissue from a plant comprising incubating plant tissue on a growth medium under conditions comprising dim light for a sufficient time to produce green regenerative tissue, wherein the growth medium comprises auxin at a concentration of about 0.1 mg/L to about 5 mg/L, cytokinin at a concentration of from 0.00 mg/L to about 2 mg/L, copper at a concentration of about 0.1 μ M to about 50 μ M, and a carbon source.~~

30 26. The method of claim 25 wherein the auxin concentration is about 1 mg/L to about 2.5 mg/L and the cytokinin concentration is about 0.01 mg/L to about 0.5 mg/L.

27. The method of claim 25 wherein the auxin concentration is about 1 mg/L to about 2.5 mg/L, and the cytokinin is about 0.1 mg/L to about 2 mg/L.

28. The method of claim 25, wherein the auxin is selected from the group consisting of 2,4-dichlorophenoxyacetic acid, dicamba, naphthaleneacetic acid, indoleacetic acid, picloram, 2,4,5-trichlorophenoxyacetic acid and mixtures thereof, and the cytokinin is selected from the group consisting of zeatin, BAP, and mixtures thereof.

29. The method of claim 25 wherein the plant tissue is callus derived from an immature embryo or a mature seed.

30. The method of claim 29 wherein the immature embryo is an immature zygotic embryo.

31. The method of claim 29 wherein the callus is produced by a method comprising incubating the immature embryo on a callus-induction medium comprising auxin at a concentration of about 0.1 mg/L to about 5 mg/L, cytokinin at a concentration of from 0.0 mg/L to about 2 mg/L, copper at a concentration of about 0.1 μ M to about 50 μ M, and a carbon source.

32. The method of claim 29 wherein the callus is produced by a method comprising the steps of:

germinating a seed on a callus-induction comprising auxin at a concentration of about 0.1 mg/L to about 5 mg/L, cytokinin at a concentration of from 0.0 mg/L to about 2 mg/L, copper at a concentration of about 0.1 μ M to about 50 μ M, and a carbon source, thereby allowing root and shoot formation;

excising the root and shoot from the seed;

incubating the germinating seed under conditions comprising dim light; and

selecting nodular, compact structures that form on the germinating seed.

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33. The method of claim 25 wherein the plant tissue is derived from a monocotyledonous plant.

34. The method of claim 33 wherein the monocotyledonous plant is selected from the group consisting of barley, oat, wheat, maize, rice, sorghum, orchardgrass, tall fescue, red fescue, creeping bentgrass and Kentucky bluegrass.

35. A method for regenerating a plant from plant tissue, comprising:
incubating plant tissue on a growth medium under conditions comprising dim light for a sufficient time to produce green regenerative tissue, wherein the growth medium comprises auxin at a concentration of about 0.1 mg/L to about 5 mg/L, cytokinin at a concentration of from 0.0 mg/L to about 2 mg/L, copper at a concentration of about 0.1 μ M to about 50 μ M, and a carbon source; and
transferring the regenerative tissue to a regeneration medium and incubating the tissue so as to produce a plant.

36. The method of claim 35 wherein the carbon source comprises maltose or sucrose.

37. The method of claim 35 wherein the auxin is selected from the group consisting of 2,4-dichlorophenoxyacetic acid, dicamba, naphthaleneacetic acid, indoleacetic acid, picloram, 2,4,5-trichlorophenoxyacetic acid and mixtures thereof.

38. The method of claim 35 wherein the cytokinin is selected from the group consisting of zeatin, BAP and mixtures thereof.

39. The method of claim 35 wherein the plant tissue is callus derived from an immature embryo or a mature seed.

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40. The method of claim 35 further comprising introducing a nucleic acid into at least one cell of the green regenerative tissue.

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5 41. The method of claim 40 further comprising selecting transformed plant tissue comprising incubating the green regenerative tissue on a growth medium comprising a selective agent.

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